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**Chilean agricultural export promotion
experience to advance agricultural trade: legal,
regulatory and operational frameworks and
impact assessment**

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1 Introduction

Increasing exports ranks among the highest priorities of many governments in both developed and developing countries. The reason is that favouring domestic exports leads to economic growth (see Giles and Williams, 2000; and Harrison and Rodríguez-Clare, 2009; see also UNCTAD, 2008).

Globalization has changed the international environment by lowering barriers to trade and investment and placing competitive pressures on different countries' economies. Evidence shows that exports provide benefits to a country's economy in terms of growth and efficiency, since firms that export perform better than non-exporters. In general, the export of goods and services and economic development are positively correlated and interdependent. Exports affect and are affected by long-term economic growth (Villanueva, 1993; Auboin, 2004).

The literature indicates that increased export flows are an engine for growth (Giles and Williams, 2000; and Harrison and Rodríguez-Clare, 2009). Selecting those economic sectors in which countries should specialize is important when aiming to achieve the benefits of increased exports (Piñeres and Ferrantino, 1997; An and Iyigun 2004; and Hausmann et al. 2007). In terms of growth, exports increase the benefits of individual firms due to scale effects of operating on the global market rather than on the domestic market, increasing their productivity by adopting best practices in business methods. Additionally, operating in larger markets leads to efficiency gains through knowledge transfers. Export firms learn new skills, new technology and new marketing techniques. Thus, exporting transfers knowledge and skills from international markets to domestic firms.

There are also social benefits of increasing the number of exporters and export volumes. In the first place, involvement in exports has an overall positive effect on wages and working conditions. Secondly, exporters innovate and invest in human capital in order to compete internationally. As a result, both large and small exporters provide higher quality jobs and better working conditions than non-exporters. Thirdly, there are social benefits in terms of rural growth. In many, especially developing countries a lot of exporters come from rural areas so incentivizing exports contributes to economic development in rural areas.

On the other hand, increasing the number of exporters, especially small and medium-sized exporters (SME), widens the platform of beneficiaries of these economic and social benefits.

Furthermore, if a lot of SMEs are involved in exports the benefits are increased by sharing and transferring this knowledge to many SMEs instead of it staying among just a few big players.

A large proportion of SMEs that are considering participating in foreign markets do not initiate export activities. This can be partially explained by the minimum requirements to start export activities; namely having a good product or service, and being competitive. However, these are necessary but not sufficient conditions for success in the export market. New exporters must be prepared to accept the risks and efforts that are always associated with exports. But, even though there are firms that satisfy these requirements many of them are not involved in exports. This occurs because, in general, these firms tend to overestimate the risks and underestimate the benefits of exporting. This perception of high risk can be lowered and the awareness of benefits increased through knowledge of international markets and increased capacities. Therefore, governments have an important role to play in transferring international market information and opportunities and capacity building. Due to the important role that exports play, relevant export promotion policies (EPP) have been developed in several countries in order to assist both potential exporters, especially SMEs (Crick et al., 2001; Wilkinson and Brouthers, 2006), to begin exporting and to help those that already export to increase their exports and to diversify markets. EPPs are only one of the many factors that contribute to a country's growth, though there is a strong association between the two (Krueger, 1983). In addition, the way countries design their EPPs differs according to the cultural, legal, and political environments as well as the stage of economic development (Seringhaus and Rosson, 1990).

The economic justification for government intervention in promoting exports are (Belloc and Di Maio, 2011):

1. Reaching an optimal number of export firms;¹
2. Protecting comparative advantages until export spillovers to the rest of the economy materialize;
3. Ameliorating the lack of information, which contributes to reducing the perceived risks associated with exports;
4. Identifying goods and services with comparative advantages.

In general, export promotion programs are implemented with two main aims.

¹ The number of export firms without government intervention tend to be suboptimal (Bernard and Jensen, 1995, 1999, 2004; and Melitz, 2003).

1. To increase export flows.
2. To select those economic sectors in which the country's export strategy should specialize.

Today's export promotion programs often consider some or all of the following objectives to incentivize export growth (Karen, 2011).

1. *Increase a firm's intention to export.* Identifying companies that intend to export, and encouraging them to make a proactive commitment to export represents an opportunity for increasing the number of exporters.
2. *Increase opportunities for potential exporters.* Locating opportunities for potential exporters and matching capabilities and opportunities. Additionally, create or strengthen international networks, since they provide representation, market intelligence, contacts, opportunities and visit assistance.
3. *Increase the success rate of first time exporters.* Success in exports is highly dependent on the firm having the right skills and commitment. Thus it is also important to identify such firms, to help them develop their export capabilities and to encourage them to explore export opportunities.
4. *Increase the number of regular exporters.* By encouraging new firms with potential to export early in their life could develop the interest of potential new exporters.

EPPs consider a variety of instruments such as export promotion, export subsidies, dedicated export zones², enhanced credit access for actual and potential exporters³, foreign currency revolving funds, pre-shipment export finance guarantee schemes, and matching grant schemes, which are targeted at potentially successful exporters.

Several studies have evaluated the performance of export promotion programs, reaching mixed conclusions (Francis and Collins-Dodd, 2004; Gencturk and Kotabe, 2001; Görg et al., 2008; Lederman et al., 2008; Wilkinson and Brouthers, 2000). For example, while Lederman et al. (2008) found that export promotion agencies have a strong and statistically significant impact on the countries' total export volumes, Görg et al. (2008) found little evidence that export promotions increase the number of exporters.

² Dedicated export zones are demarcated geographical areas where the regulation of firms' activity and the dedicated policies are differentiated from those applied to firms outside the zone, and are addressed to create a policy environment that are exporter friendly.

³ Possible instruments to enhance credit access are subsidizing credit for small firms, increase competition in the credit markets, facilitating information transmission and providing credit insurance, export credit and export guarantees (Belloc and Di Maio, 2011)

Thus, evaluating EPPs is important for both assessing their effects and improve their functioning. EPP evaluation programs have been implemented in several countries; for example, in Denmark, UK, USA, Australia, and Chile.

The purpose of this report is to detail Chile's export promotion policy, highlighting its design, results and impacts.

2 Chile characteristics

A long narrow strip of land (no more than 430 km wide) between the Andes and the Pacific Ocean, Chile stretches 4 630 km from near latitude 18°S to Cape Horn (latitude 56°S), including at its southern end the Strait of Magellan and Tierra del Fuego, an island shared with Argentina. Chile has several islands in the Pacific Ocean, including Easter Island, the Juan Fernández islands, and the Diego Ramírez islands (Figure 2.1).

Chile's total land area is 743 800 km², of which 21.2 percent is agricultural land (157 687 km²) and 21.8 percent is forest (162 148 km²). The majority of agricultural land is covered by natural pastures. Arable agricultural land covers 1 294 000 hectares (ha), which is 1.7 percent of the total land surface. Urban areas cover approximately 0.06 percent of total surface. Currently it is estimated that Chile's wetlands cover 4 498 060.7 ha, equivalent to 5.9 percent of Chile's total land area.

Chile is divided administratively into 15 regions, and has over 17 million inhabitants, of which 89 percent are concentrated in cities, mainly in the Metropolitan Region (RM) and Valparaíso, with 31 percent and 9 percent of the population of Chile respectively. Population growth has declined in recent years from about 2 percent in the early 1990s to 1 percent in 2009 (INE, 2011).

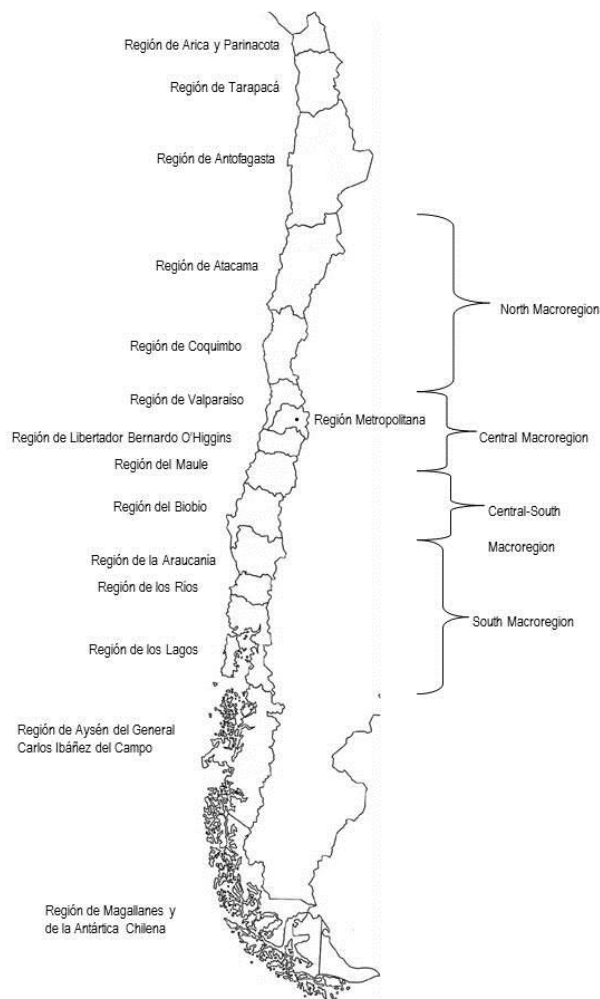


Figure 2.1: Map of Chile

In the last three decades Chile's real GDP has grown by 6.2 percent annually on average. The economy is based mainly on exports concentrated on natural resource production processes that are highly dependent on water, such as mining and agriculture (Central Bank of Chile, 2010). However, the economy recorded a slowdown in 2014 with growth of 1.9 percent, affected by a decline in the mining sector due to the end of the investment cycle, the fall in copper prices and the decline in private consumption.

International trade in Chile has significantly increased; between 2009 and 2014 trade increased at an annual rate of 8.5 percent, reaching USD 147 834 billion (Figure 2.2).

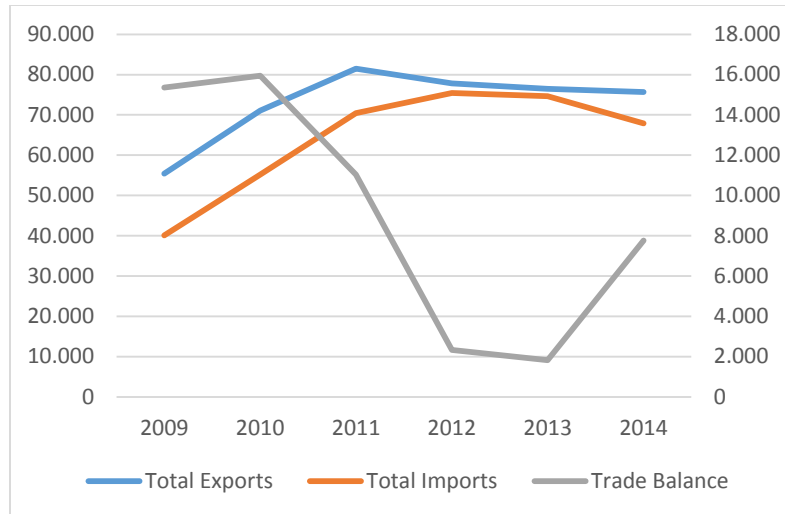


Figure 2.2: Chile's trade balance in billions of USD (Direcon, 2015)

Chilean exports are concentrated in the mining sector, accounting for 54.2 percent of all exports in 2014 (Direcon, 2015). Another important sector for Chilean exports are industrial goods, which accounted for 38.2 percent of total exports in 2014. Exports of processed food accounted for 12.4 percent of total industrial goods exports. Agricultural, forestry and fisheries represented 7.6 percent of total exports; fresh fruit exports are the most important from the agricultural sector, accounting for 85 percent of this sector's exports.

Trade growth was accelerated by Chile's free trade agreements. Since the late 1990s, Chile has acceded to a series of free trade agreements (FTAs) with countries both in Latin America and around the world, among them those signed with the major economies of the world are with the US, China and the European Union. To date, Chile has signed 22 trade agreements with 60 countries, currently reaching more than 4 200 million people on all five continents.

Table 2.1: Free trade agreements signed by Chile

Counterpart	Agreement	Starting date	Percent products without tariffs 2011		Tariffs
			Export.	Import.	
ALADI	Partial commercial agreement (A.A.P)	1983			Considers tariff preferences but not tariff reduction
México	Free trade agreement (FTA)	1999	99%	99%	Considers permanent exclusions
Venezuela	A.C.E	1993	99%	100%	Considers permanent exclusions
Bolivia	A.C.E	1993			Considers tariff preferences but not tariff reduction
Colombia	A.C.E and FTA	1994 2009	98%	10%	No exceptions
Ecuador	A.C.E	1995	97%	99%	Considers permanent exclusions
Mercosur (Argentina, Brasil, Paraguay, Uruguay)	A.C.E	1996	100%	99%	No exceptions
Canadá	FTA	1997	98%	64%	Considers permanent exclusions
Perú	A.C.E FTA	1998 2009	95%	98%	No exceptions
Centro América Costa Rica El Salvador Honduras Guatemala Nicaragua	FTA	2002 2002 2008 2010 Pendiente	53% 98% 59% 33%	73% 0% 99% 1%	Includes negotiations
Cuba	A.A.P	2008			
Unión Europea	Agreement on political, economic association cooperation	2003	88%	88%	Considers specific exemptions
South Korea	FTA	2004	63%	97%	Considers specific exemptions
Estados Unidos	FTA	2004	85%	63%	No exceptions
AELC (EFTA) Suiza Liechtenstein Noruega Islandia	FTA	2004	28% 0% 78% 10%	5% 0%	Immediate Tariff reduction on some products and tariff preferences on others. Considers specific exemptions
P4 Nueva Zelanda Singapur Brunei Darussalam	Economic association agreement (A.A.E)	2006	100% 100%	75% 100%	Immediate tariff reduction on some products and tariff reductions on others.
China	FTA	2005	92%		Considers exemptions
India	A.A.P	2007			Considers exemptions
Panamá	FTA	2008	34%	100%	Considers exemptions

Source: Direcon (2015) and Odepa (2012)

In addition to free trade agreements, the economic partnership agreements have led to tariff reductions and allow for noncommercial agreements. Chile has also signed other trade treaties,

such as the Economic Complementation Agreement (ACE) and partial agreements. The ACE consists of bilateral agreements with Latin American members of the Latin American Integration Association (ALADI); Chile has signed ACE agreements with Venezuela, Bolivia, Ecuador, and in 1996 with the Southern Common Market (Mercosur), whose members are Argentina, Brazil, Paraguay and Uruguay. On the other hand, partial agreements relate to specific product tariff negotiations, and are considered a first step towards a broader free trade treaty. Chile has such partial agreements with Cuba and India.

At present, Chile's foreign trade is concentrated in four regions: Asia, North America, South America and Europe. During 2014 these areas accounted for about 95 percent of Chile's trade, concentrated in Asia with 40.8 percent, followed by North America with 20.1 percent, South America with 17.5 percent and Europe with 16.3 percent. On the other hand, trade with Central America and the Caribbean represents only 1.6 percent of Chile's world trade, while Oceania accounted for 1 percent and Africa 0.6 percent.

3 Chile's Export Promotion Program

3.1 Program overview

The aim of Chile's EPP is to contribute to the internationalization⁴ of Chilean companies. Its purpose is to promote the growth and diversification of non-traditional exports⁵ of Chilean companies. At present non-traditional exports represent only 20 percent of total exports; thus in order to diversify Chilean exports, it is important to increase non-traditional exports.

Chile's EPP consists of two funds:

1. The Export Promotion Traditional Fund (FT).
2. The Agricultural and Forestry Exports Promotion (FPESA).

⁴ Internationalization is defined as the process by which companies access international markets. The different stages of this process normally refer to product export, establishment of company subsidiaries abroad, among others.

⁵ Nontraditional exports refer to all products with the exception of: copper, fish meal, cellulose, iron, nitrate, silver metallic oxide, ferromolybdenum, molybdenum, gold ores, lumber, and methanol.

The FT began in 1987 and depends on the Chilean Trade Commission (ProChile), Dirección General De Relaciones Económicas Internacionales (Direcon - Directorate of Economic External Relations), within the Ministry of Foreign Affairs (Ministerio de Relaciones Exteriores).

The export promotion program FPESA, on the other hand, originated in 1995 under the dependence of the Ministry of Agriculture (MINAGRI). This program is managed by Direcon with funds transferred from MINAGRI in order to fund export promotion strategies. It is specifically targeted at companies in the agricultural, livestock, and forestry sectors.

The goal of both export promotion funds is to provide a number of co-financing arrangements for exporters that lead to an increase and/or diversification of exports, and that reduce current trade obstacles. These projects may include actions such as:

1. Export promotion initiatives such as: leaflets, brochures, videos, advertising campaigns, tastings, publications, and inviting writers, journalists, importers and foreign investors to Chile;
2. Export studies and prospective market research;
3. Business and commercial prospecting missions;
4. Participation in international fairs;
5. Participation in specialized export conferences;
6. Development of new export products and technologies that present the greatest market potential;
7. Fulfillment of foreign market requirements in terms of products and their packaging.

Additionally, they consider:

1. The generation and dissemination of foreign commercial information to the entire export sector;
2. Training and export capacity building;
3. Export Promotion strategies and actions directly executed by FTP and FPESA.

Both export promotion funds cover the entire territory of Chile.

Those interested in participating in a FPESA instrument can register through ProChile's website. Potential beneficiaries must detail their export experience and export potential, their company's characteristics and the objectives they expect to reach. There is a regional or national validation of the enrolled aspiring beneficiaries. The final selection is conducted by FPESA's Council. The

selection process of the export promotion proposals depends on the specific actions that are considered by FPESA.⁶ However, in general the selection process follows:

1. Eligibility analysis;
2. Technical evaluation of eligible proposals;
3. Final selection decision of approval, and communication of the selection results on ProChile's website, classifying each proposal as:
 - a. Accepted
 - b. Accepted conditional on revisions
 - c. Rejected

As of 2004, SMEs have become the focus of several governmental incentives, including its EPPs. Chile included an export-readiness program initiative in its FPESA Program that includes face-to-face counseling and other customized services.⁷ The main objectives of these actions of FPESA are to:

1. Establish support structures in order to facilitate the insertion of SMEs into foreign markets;
2. Favour access to the opportunities arising from the trade agreements for agricultural and forestry SMEs;
3. Develop export capacities to help SME realize sustainable strategies in foreign markets.

The EPP has three components:

1. Trade information generated and disseminated to the exporting sector;
2. Export training and capacity building;
3. Export promotion strategies and actions.

Table 3.1 presents a general overview of these components. All strategic action lines apply to the FEPSA fund, while the FT fund does not include Public tenders, Agricultural SMEs Internationalization Program (PIAC), Gastronomic week, and business roundtables.

⁶ The specific selection process of each initiative is specified in detail when each initiative is described.

⁷ FPESA considers specific initiatives for SMEs that are presented in Section 3.2.2 of this report.

Table 3.1: General overview of the EPP components

Component	Strategic Action Lines	Strategic subline	EPP Fund	Assignment form
Trade information generated and disseminated to the exporting sector	Comercial Information		FPESA + FT	Direct assignment
Export training and capacity building	Export Capability Generation	Agricultural SMEs Internationalization Program (PIAC)	FPESA	
		Export coaching	FPESA + FT	
		Technical assistance and training	FPESA + FT	
Export promotion strategies and actions	International fairs		FPESA + FT	
	Market management support		FPESA + FT	
	Strategic plans	Sector Plans at the national scale	FPESA + FT	
		Sector Plans at a defined territorial scope	FPESA + FT	
	Multiproduct plans	Chile week	FPESA + FT	
		Chile flavours	FPESA + FT	
		Gastronomic week	FPESA	
		Business roundtables	FPESA	
	Support to overcome negative international situations		FPESA + FT	
	Public tenders	National tender	FPESA	Public Tenders
		Agricultural SMEs tender		

Source: ProChile.

3.2 Agricultural and Forestry Exports Promotion Program (FPESA)

3.2.1 Program Justification

The initial diagnosis that justified the creation of FPESA is based on the following three main problems:

1. The historical concentration of Chile's exports in copper, fish meal, cellulose, iron, and nitrate;
2. Low diversification of export and non-traditional products;
3. The low participation of agricultural and forestry SME exporters.

The FPESA is associated to the strategic objective of the Ministry of Agriculture, which seeks to "promote the growth and diversification of non-traditional exports of Chilean forestry and agricultural businesses." Thus, the program is aligned with the strategic objectives defined by the

Ministry of Agriculture and the Ministry of Foreign Affairs (DIRECON). The strategic objectives that are associated with FPESA are:

1. Ministry of Agriculture:
 - a. To ensure that Chile becomes a leader in agricultural and forestry trade
 - b. To promote the inclusion SMEs and family farming.
2. Ministry of Foreign Affairs:
 - a. To support the development of international marketing strategies
 - b. To support the generation of business contacts and the internationalization of Chilean firms
 - c. To promote trade

The main objective of FPESA is to promote the growth and diversification of agricultural and forestry exports of Chilean companies. Its specific objectives are to:

1. Encourage the forestry and agriculture's participation in export promotion activities ensuring competitiveness, sustainability, transparency and free access principles;
2. Promote export development, favouring regional development and greater diversification, taking advantage of the new trade agreements and public development and innovation programs;
3. Create support structures for agricultural and forestry SMEs to promote their integration into the international market;
4. Strengthen agricultural diplomacy by increasing the number of agricultural attachés;
5. Promote the access of agricultural and forestry companies to the opportunities that arise from existing trade agreements;
6. Develop export capacities of agricultural and forestry SMEs.

In the following sections detail FPESA's export promotion instruments.

3.2.2 FPESA instruments

FPESA considers three components:

1. Trade information generated and disseminated to the exporting sector;
2. Export training and capacity building;
3. Export promotion strategies and actions.

3.2.2.1 Trade information generated and disseminated to the exporting sector

ProChile publishes an Export Directory that includes profiles of Chilean exporters, including contact information, destinations of exports, and products. The directory is sold at cost in hard copy and CD format. ProChile also maintains a separate website targeting external audiences in English and Spanish (www.chileinfo.com). It has a searchable database of exporters by product or company name, details of upcoming trade shows and events, and information about Chile's export sectors. It includes an interface to an electronic marketplace that claims to match foreign buyers with Chilean sellers. Still under development, this system contains only a few offers or quotes. Chile's external site stands out from most others in that it provides a good overview of the country's "product channels" in addition to more targeted company search tools (Nathan Associates, 2004).

Additionally, Nathan Associates (2004) points out that ProChile creates country guide handbooks covering most of Chile's major trade partners, in order to provide economic and social data and profiles of consumer spending, tastes, purchase patterns, and other relevant information about these trade partners.

Studies of specific sectors of a target country or on broad product or service categories of interest to Chilean industries are conducted by ProChile's trade offices. These reports are available at ProChile's website or by requesting them directly from the trade offices. They are available only to registered Chilean exporters.

3.2.2.2 Export training and capacity building

This component considers five export promotion instruments:

1. Export coaching
2. Small-scale farmer public tenders
3. Educational courses
4. Training activities
5. Agricultural SME Pre-Internationalization Program

3.2.2.2.1 Export coaching

Exporter Coaching is a support tool based on a training in action methodology, which promotes leadership skills and business management based on real business experience. It is aimed at supporting potential exporters in building support networks and strengthening their export

capacity. Participants work collaboratively in learning communities composed of entrepreneurs of related productive sectors, with a maximum of 10 participants per group. Technical lectures and discussions with leading business figures from business and institutional representatives of ProChile support participants develop successful export initiatives.

3.2.2.2.2 Small-scale farmer public tenders

This competition is similar to the national export proposal tenders in many ways. The difference is the target group, in this case small-scale farmers, and the required co-funding. This instrument focuses on small-scale farmers' associations, companies or individual small-scale farmers. The types of proposals that are accepted are, sectoral export promotion projects and business export promotion. This instrument requires 20-30 percent co-funding of the total project cost; the required co-funding is reduced to the characteristic of the target population.

3.2.2.2.3 Educational courses

These courses provide international trade knowledge, in order to incorporate and develop skills for new exporters and future Chilean business leaders. A "Diploma in International Trade" is offered to various productive sectors of both goods and services.

The Diploma in International Trade for the export of goods is aimed at potential exporters in the agricultural, forestry, and agro-industrial sectors.⁸ On the other hand, the Diploma in International Trade Export Services, is aimed at exporters or firms with export potential of the service sector, such as information technology, education, architecture, engineering, construction, tourism, electrical and electronic, and mining.

3.2.2.2.4 Training activities

There are training workshops in different regions of the country to support the insertion of firms into international markets. They are based on the delivery of knowledge and skills on: foreign exchange risk coverage, business leadership, logistics in international trade, pricing and financing mechanisms for the exporter, international sales and trading, selection of optimal markets,

⁸ Fresh fruit, nuts, livestock, floriculture, apiculture, gourmet products, dairy, wines and liquors.

gourmet exports, digital marketing and commercial techniques. They also offer the "Transforming into an Exporter" workshop.

3.2.2.2.5 Agricultural SME Pre-Internationalization Program

This instrument offers guided visits to international fairs and market research missions, in order to support SME agricultural entrepreneurs in their integration into international markets.

3.2.2.3 *Export promotion strategies and actions.*

The objective of this component is to support —through co-funding — export promotion initiatives such as sectoral promotion, designed by the companies or groups of companies (firm associations), as well as companies that have export potential in non-traditional products.

The activities funded by this component and its various strategic lines of action are: national export proposal tenders, participation in international fairs, product exposition and tasting events, Chile flavors, market management support, export strategic plans, business roundtables, and Chile weeks. This component also supports initiatives by the international offices of ProChile aimed at improving the relationship with commercial agents who purchase Chilean products (importers), through events and promotional activities and marketing distribution channel studies. Funding for these activities is provided by FPESA and by the participating companies; the funding share of each company is proportionate to its size. Funds are assigned by national tenders or directly depending on the specific instrument.

3.2.2.3.1 National export proposal tenders

This instrument supports international promotion strategies designed by individual exporters or groups of exporters, as well as those presented by companies with export potential. Funding for this is 100 percent from FPESA and is allocated through public tenders, where companies or associations present their own projects. There are two public tenders with different objectives:

1. Sectoral Export Promotion Projects. These consist in medium or long term sectoral export promotion initiatives. The sectoral export promotion initiatives: foreign market research, trade missions to explore potential markets, trade penetration missions, invitation of potential customers to visit the country, product showrooms and tasting, participation in trade fairs, seminars and conferences on market intelligence, generic campaigns intended

to contribute to export promotion and positioning of a sector in external markets based on a strong country image.

2. Business Export Promotion Proposals. These are short or medium term strategies aimed at market prospection or penetration for a firm's product or product mix. The specific fundable activities are: foreign market research, trade missions to prospect markets, advertising and promotion, invitation of potential customers and visitors to international fairs.

As previously stated, these activities are funded through national tenders, which have the following steps:

1. Call for project proposals. The Executive Secretariat of the program is responsible of this stage. This stage also considers a project proposal generation training course for potential exporters that have been identified by regional and national offices of ProChile. The training is conducted by the regional coordinators on subjects such as call requisites, types of projects that are considered, and proposal specifications, among others.
2. Project proposal presentation. The presentations are through ProChile's specifically enabled web site (www.gestion.prochile.cl), which indicate the call requisites and presentation procedures.
3. Eligibility analysis. This step checks whether the applicant met all of the call requisites.
4. Evaluation of eligible proposals. Eligible proposals are assigned to individual institutional evaluators — based on the commercial sector and proposal characteristics — who perform technical appraisals. Proposals that receive positive technical evaluations are submitted for strategic assessment.
5. Analysis of the relevance of the proposal. Recommended strategic projects are submitted to the FPESA Council, which evaluates the relevance of the submitted proposals.
6. Approval and fund assignment. The proposed final decisions for all proposals are subsequently approved by the DIRECON Director together with the Secretary of Agriculture. The proposal can be accepted, accepted with required adjustments or rejected. Once the proposal has been administratively granted, the applicants and DIRECON sign a contract establishing that ProChile will act as a counterpart with the firm or firm association signing financial bonds in order to guarantee that all of the proposed activities are completed within a period of one year. Only then are the initial funds

transferred to the firm or firm association. The rest of the funds are transferred according to an agreed timetable and only once each required activity report has been approved by ProChile. If the beneficiary breaches the agreement, ProChile has the right to demand full repayment of public resources.

Regarding private contribution to the projects, applicants must meet the following co-funding criteria according to the segmentation:

1. Advanced Group: Sectoral company associations and companies with export experience, that are large exporters (greater than USD 7.5 million per year), spend a significant proportion of resources on generic promotion and have been consistently supported by ProChile. For these cases, proposals that are presented must be sectoral (*e.g.* fruit, meat) and require a private sector contribution of 50-70 percent of the total project cost.
2. Developed Sectoral company associations and companies with emerging or medium export potential (less than USD 7.5 million per year). Firms that are not members of sectoral company associations as well as companies or groups of companies with limited resources for generic promotion. For these cases, proposals must be sectoral and require a private sector contribution of 50-70 percent of the total project cost.
3. Innovative Group: SMEs or SME associations that are developing high value added products or niche products and companies or associations with emerging or potential export experience. In these cases, proposals must be sectoral and require a private sector contribution of 40-55 percent of the total project cost.

3.2.2.3.2 Participations in international fairs

This instrument funds participation in institutional international fairs with the aim of positioning national exportable supply of domestic companies in external markets, coordinated by the Trade Fairs and Events Department of ProChile. They select the annual participation proposals in trade fairs; selection that is validated by the Budget Department in accordance available resources.

Before the trade fair, the Trade Fairs and Events Department sends participation invitations to companies which are selected according to the products that the fair is promoting (food, fruits, and wine, among others). Once the number and type of participants has been defined, the exhibition space is reserved and the design, construction and other required activities to set up the

pavilion are subcontracted through a public bidding process. With the help of their international offices, ProChile sets up an agenda of meetings with potential partners during the trade fair. Finally, Chile's participation is promoted through the media and directly to potential partners and import companies.

During the trade fair, the Trade Fairs and Events Department supervises manages the Chilean pavilion and presence. Additionally, they hire the required pavilion staff to inform visitors of the attributes of the promoted products (*e.g.* chefs, promoters, sommeliers). The selection criteria vary according to the trade fair objectives. The criteria that is always considered is the language expertise and knowledge of the relevant export supply of Chile. Additionally, business meetings between participants of the fair and local importers are coordinated.

Once the trade fair has taken place, a participation and results evaluation is conducted, so as to improve future events.

ProChile directly allocates resources to the participation support proposals, requiring that all the participating firms co-finance the total participating costs. The required co-funding levels is proportionate to:

- The costs of the event
- The participating firm's characteristics, considering firm size and annual export levels
- The surface of the pavilion that is reserved for the company (m²)
- The number of participating firms
- The country where it takes place

In accordance to the above determinants, ProChile funds between 10 and 40 percent of the participation costs. Given that reservations must be confirmed in advance, ProChile requires each company's co-funding to be made in advance (usually 3-6 months). The funds are managed through the system of third party fund administration, which allows ProChile to receive private funds.

3.2.2.3.3 Product exposition and tasting

This instrument consists of a showroom which is primarily oriented to promoting a unified country image of the national wine industry, linked to the high quality wines. This wine exposition is typically complemented by the exposition of gourmet products, olive oils, beer, mineral water, and

pisco.⁹ Thus this instrument allows for effective promotion consistent with the promoted country image, so as to increase of the average sales value and the number of vineyards in the market.

It focuses on Chilean wine exporters or companies that have exportable wine supply. These are wineries between the Coquimbo and Araucania Regions, Chilean alcoholic beverage companies across the country (beer, pisco) that are interested in exporting, Chilean gourmet companies and olive oil industry throughout the country, and representatives of these companies in foreign markets.

3.2.2.3.4 Chile flavours

This consist of tours to different countries to hold business meetings with local firms and to tasting events for importers, wholesalers and retailers, hotel chains and restaurants, supermarkets, distributors, specialist journals, and opinion leaders, among others. This trade mission seeks to diversify exports, increase sales of high value added products, increase exports of food and beverages, inform local importers, intermediaries and consumers of the attributes of Chilean food products and position our country. To reach this objective, bilateral business meetings with local importers are organized. The anchor event is the Chilean product tasting event to which importers, wholesalers, hotel chains and restaurants, supermarkets, distributors, specialist journals, and opinion leaders are invited.

ProChile directly allocates resources to these initiatives requiring non-cash contributions from the participating firms. The required amount depends on the necessary activities to insure that these initiatives are a success; additionally, this requirement increases the effective participation and commitment of the firms.

3.2.2.3.5 Foreign market management support

This instrument supports projects designed and executed by the external network of commercial ProChile offices, such as identifying new marketing channels and arranging meetings between national exporting companies and potential importers in order to strengthen their relationships.

⁹ Pisco is a colorless or yellowish-to-amber colored brandy produced in winemaking regions of Peru and Chile.

The process begins with the proposal submissions by international commercial offices of ProChile through the www.gestion.prochile.cl, which specifies the objectives, allowed activities, and available budget. The selection process is:

4. Eligibility analysis
5. Technical evaluation of eligible proposals
6. Final selection decision of approval, and communication of the selection results ProChile's website, classifying each proposal as:
 - a. Accepted
 - b. Accepted conditional on revisions
 - c. Rejected

There is an appeal process after which the final selection is communicated to the external network of commercial offices and the funds are allocated to each initiative. Funding for this activity is mainly public (100 percent of cash resources) requiring non-cash contributions from firms. The required level of co-funding depends on the characteristics of the initiative; however, there is no *a priori* definition of the required amounts, which are requested during the development of the project.

To ensure the proper implementation and management of the projects, a supervisor is appointed (typically a professional employee of the international departments), who must present a final report on the percentage of executed activities with respect to the proposed activities. This report must be approved by the Director of the commercial office.

3.2.2.3.6 Strategic Plans

Strategic export promotion plans are sectoral export development strategies that enable exporters or potential exporters to meet pre-established market prospecting, penetration targets, and/or maintenance of exports in a foreign market. These plans are designed with a three years moving horizon, with annual implementation projects such as:

1. Trade missions
2. Funding visits of importers
3. Business conferences
4. Sales promotion, among others

The strategic plans consider two sub-lines: national and territorial sector plans.

1. The national sector plan corresponds to a set of medium term actions designed to prospect markets, introduce new products or consolidate exports of goods or services in a productive sector or subsector.
2. The territorial plan consists of a series of initiatives to promote and support the development of exportable products of a specific region of Chile.

Financial resources are assigned directly by ProChile, with 50 percent co-funding from participating private firms. This co-funding corresponds to non-cash contributions.

3.2.2.3.7 Business round tables

These allow entrepreneurs to contact a number of potential importers through scheduled meetings. ProChile invites potential importers selected by its international trade office. The selection of domestic firms depends on the needs of importers and each firm's product supply and characteristics (which are detected through surveys).

FPESA fully funds this activity and does not require co-funding from private companies.

3.2.2.3.8 Chile Weeks

The main objectives of Chile Weeks are to increase Chilean exports, focusing on promotional activities in key markets, to diversify the export supply and target markets, to disseminate the attributes of export companies, goods and services, and to position Chile in the world. Chile Weeks consist of business missions that include previously scheduled by ProChile business meetings, product tastings prepared by leading chefs and sommeliers, thematic seminars, technical visits to production centers, and cultural activities, all to show a diverse, reliable, and serious country. It is a single itinerant promotional tool that visits different parts of the world. The areas to be visited each year are mutually agreed between ProChile and private companies who seek to position their products. Funding for this activity is mainly public but requires non-cash and cash contributions from companies.

3.2.3 Priorities

ProChile establishes market priorities that present the highest potential for export growth, especially where free trade agreements are in effect. The most important markets are North America and the EU. Additionally, sector priorities are set based on the best match of the export

firm's capabilities with target demand markets. Second-level priorities are determined through consultations with industry associations based on each sector's business needs and priorities.

3.2.4 Organizational Structure of FPESA

The Ministry of Agriculture funds all of FPESA's initiatives. However, the Ministry of Agriculture did not have the required expertise to manage an export promotion program and, thus, it was delegated to the Directorate for Export Promotion of ProChile, which already managed the Export Promotion Traditional Fund (FT). The Directorate for Export Promotion, ProChile, is the institution in charge of promoting Chilean goods and services and contributing to the increase of foreign investment and promoting tourism. It has a network of 14 offices in Chile and 59 trade offices or trade representative offices in 38 countries.

The Ministry of Agriculture presides over FPESA's Council which considers representatives of ProChile, and representatives of agricultural and food trade associations. More specifically, Decree No. 80 of the Ministry of Agriculture establishes the following composition of the FPESA Council:

- Undersecretary of Agriculture, who presides the Council
- Director of ProChile
- Director of Direcon¹⁰
- Director of the ODEPA¹¹
- Director of INDAP¹²
- Representative of Corfo¹³
- Representative of the Finance Ministry
- 13 representatives of the private sector, nine of which must be associated with the agricultural export sector and four of which must be small-scale or peasant farmers.

The Council establishes FPESA's objectives and strategies. Moreover, the Council plays a decisive role in the analysis and approval of the programs that are supported by FPESA. In light of this, the Ministry of Agriculture established the EPP's priorities and focus, and participates in the selection

¹⁰ Directorate of General International Economic Relations (*Dirección General de Relaciones Económicas Internacionales, Direcon*)

¹¹ Department of Policies and studies of the Ministry of Agriculture (*Oficina de Estudios y Políticas Agrícolas, ODEPA*).

¹² National Institute for Agricultural Development (*Instituto de Desarrollo Agropecuario, INDAP*)

¹³ Production Development Corporation (*Corporación de Fomento de la Producción, CORFO*)

of the initiatives that will be funded. ProChile's role is to administer the program and execute the selected criteria.

The Executive Secretariat (ES) of the FPESA Council annually presents the progress on the annual and medium term goals, through semi-annual and annual reports. Additionally, the ES is responsible for managing the resources allocated by the Ministry of Agriculture to ProChile. For this, the Budget sub-department plans, manages, controls and monitors the allocated resources. The Budget sub-department is also responsible for preparing the exploratory annual budget for FPESA that is presented by the ES to the FPESA Council. The ES is responsible for the implementation of the objectives and strategic products defined by the Council of FPESA; for this it receives progress evaluation reports on the defined goals for FPESA, where the evaluation of the defined indicators are calculated and on budgetary control of export promotion projects on a monthly, quarterly and half-yearly basis. These progress evaluations are periodically presented to the Undersecretary of Agriculture (*Sub-Secretaria del Ministerio de Agricultura*).

Rimisp (2002) points out that the trade associations that are members of the Council FPEA, have also been the target of FPESA's initiatives, which could represent conflicts of interest. However, this is minimized by the fact that this is an advisory council whose recommendations are not binding for ProChile.

ProChile also works with a number of government entities to coordinate export development initiatives with broader objectives. Key organizations include the Chilean Agency of Training and Employment Science, the Chilean Customs Office, INDAP, and the Foreign Investment Committee. For example, the Customs Office has implemented reforms and trained its workers to improve customs processing and to make the system more transparent, solicited by ProChile.

As for the coordination between the various departments for the implementation of the activities of FPESA consists of:

1. Strategic coordination: its purpose is to guide the organization's work and FPESA's funds. FPESA Council biennially defines priorities by category and markets for FPESA's activities.
2. Management coordination: Its objective is that the various departments of ProChile share information to increase efficiency in the achievement of corporate goals. Three times a year, all the regional offices and the central level meet to inform the ES and analyze the

advances in achieving annual goals. There is also coordination among ProChile's international departments and the central level for which annual meetings are scheduled to define and align the institution's international strategy. Finally, there is coordination among international and regional offices in order to share the needs of foreign markets.

3. Interministerial coordination: This coordination aims to coordinate the actions of different ministries involved in the export process and allocate the funds offered by ProChile, Minagri and other institutions (IDB, CORFO). The ES of the FPESA Council is responsible for this coordination.
4. Public-private coordination: This coordination is through the FPESA Council composed by public and private representatives.

Navarro et al. (2007) concludes that this organizational structure has allowed FPESA to efficiently adapt international markets through information flows between the various international, national and regional offices of ProChile. Additionally, it has allowed for timely decisions of participating export companies, allowing them to adapt to international market junctures.

3.2.5 FPESA Budget

FPESAs annual budget has increased 11 percent in the past decade, from USD 16.4 million in 2006 to USD 18.3 million in 2015 (Figure 3.2). FPESA receives an average annual budget of USD 17.9 million. The funds are transferred from the Ministry of Agriculture's budget.

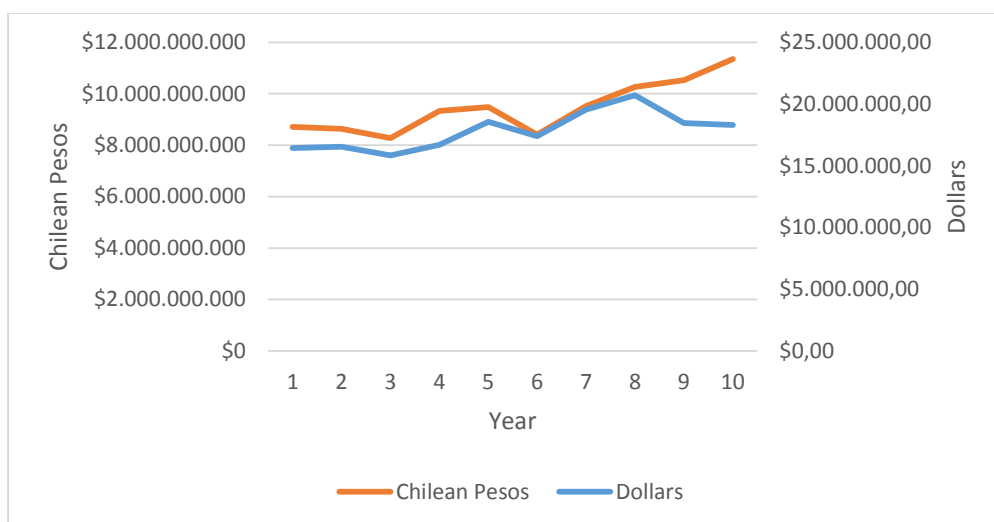


Figure 3.2: FPESA Budget between 2006 and 2015 (DIPRES, 2015)

It is important to point out that between 2013 and 2015 the budget decreased by 11.7 percent due to 25.2 percent increase in the exchange rate. The budget drop during 2011 was due to budget reallocations to finance the reconstruction of infrastructure following the 2010 earthquake.

Table 4.2 presents the budget breakdown by component. Component 3, Export Promotion Strategies and Actions, receives the majority of the funds (on average 89 percent of FPESA's budget). The remaining funds are split between Components 2 and 3, representing 3 percent and 8 percent of the total budget respectively.

Table 3.2: FPESA Budget per year distributed by Component (Dollars).

Component	2011	2012	2013	2014	% Variation 2011-2014
Component 1: Trade information generated and disseminated to the exporting sector	740 437	1 045 042	378 024	281 133	-62.03
Component 2: Export training and capacity building	1 418 530	1 521 162	1 740 049	1 206 500	-14.95
3. Component 3: Export promotion strategies and actions (Number of EPP initiatives)	15 241 599	16 993 912	18 607 735	16 977 729	11.39
Total	17 400 566	19 560 116	20 725 808	18 465 361	6.12

Elaborated based on DIPRES, 2015, data

4 Number FPESA Beneficiaries or Activities (2011 – 2015)

We studied the number beneficiaries of FPESA's instruments as a proxy of the effectiveness of ProChile's management of FPESA. The overall results are presented in Table 4.1.

Table 4.1: Beneficiaries of FPESA (Number of beneficiaries or activities) by Component.

Component	2011	2012	2013	2014	% Variation 2011-2014
Component 1: Trade information generated and disseminated to the exporting sector	NA	NA	1 362 155	1 769 400	29.9
Component 2: Export training and capacity building					
1. Export coaching, small-scale farmer public tenders, Educational courses, Training activities (Number of seminars, workshops and lectures, among others)	NA	295	268	336	14.18
2. Agricultural SMEs Pre-Internationalization Program (Number of PIAC initiatives)	20	16	7	5	-69.44
3. Component 3: Export promotion strategies and actions (Number of EPP initiatives)	305	310	275	341	11.80

Elaborated based on ProChile data

4.1 Component 1: Trade information generated and disseminated to the exporting sector

The production level of Component 1 is measured by the number of information applications such as Export Directory, assistance for exporters, cyberexport and information and newsletter dissemination. The composition of the total additional export support is presented in Table 4.3.

There were a total of 3 131 555 Component 1 attentions between 2013 and 2014, which is equivalent to 29.9 percent growth over that period. Export assistance decreased by 21 percent during this period, due to ProChile's increased focus on web assistance. FPESA implemented a series of technological improvements and institutional content updates of its webpages. Between 2013 and 2014 all other instruments of Component 1 increased by 13 percent, 347 percent, 58 percent, and 16 percent respectively.

Table 4.3: Composition of trade information generated and disseminated to exporting sector activities

Instrument	2013	2014	Total	$\Delta(2013-2014)$ (%)
Export assistance	26 678	24 539	51 217	-8.02
Cyberexport	1 316	1 481	2 797	12.57
Information dissemination	59 481	265 634	325 115	346.58
Studies on demand	1 538	2 434	3 972	58.29
Web page visits	1 273 143	1 475 312	2 748 455	15.88
Total	1 362 155	1 769 400	3 131 555	29.90

Elaborated based on ProChile data

ProChile has no defined production targets for these instruments, which is not adequate. Without specific targets, the Program cannot evaluate its progress in the strategic plan. Reyes (2009) reached similar conclusions and recommended that ProChile establish targets for each instrument; however, evidence shows that there has been no progress.

4.2 Component 2: Export training and capacity building

FPESA conducted a total of 891 educational and training activities, which is an increase of 14.18 percent between 2011-2014 (Table 4.4). Reyes et al. (2009) found similar results in the assessment they conducted in 2009.

On the other hand, we were unable to assess the Agricultural SME Pre-Internationalization Program (Number of PIAC) due to lack of information.

Table 4.4 Export training and capacity building

	2011	2012	2013	2014	Total	Δ (2011-2014) (%)
Export coaching, educational courses, training activities (number of seminars, workshops and lectures, among others	294	295	268	336	899	14.18
Agricultural SME Pre-Internationalization Program (Number of PIAC initiatives)	-	-	-	-	-	-

Elaborated based on ProChile data

4.3 Component 3: Export promotion strategies and actions (Number of EPP initiatives)

Table 4.5 shows that between 2011 and 2014 a total of 1 403 EPP initiatives were implemented, showing an increase of 57 percent. The most used instrument was the National Export proposal tender process, under which there were 799 projects, followed by SME tenders and Support to overcome negative international situations with 208 and 180 EPP projects respectively.

Table 4.5: Number of EPP initiatives

Instrument	2011	2012	2013	2014	Total	Δ(2011-2014) (%)
Support to overcome negative international situations	42	75	45	18	180	57
Foreign market management support	22	27	31	30	110	36
SME tenders	38	30	70	70	208	84
National export proposal tenders	213	195	221	170	799	20
International fairs participation	8	15	21	36	80	350
Strategic Plans	3	1	1	68	73	2167
Multiproduct plans	3	3	13	22	41	633
Total general	307	319	371	406	1 403	32

Elaborated based on ProChile data

During this period the instrument with the largest increase are the Strategic and Multiproduct strategies (2 167 percent and 633 percent, respectively).

As was the case with the previous components, FPESA has not set production targets for each instrument, which does not allow for the assessment of the advances in FPESA's medium and long term strategies.

5 Outcome assessment of Chile's Export Promotion Program

5.1 Export values

Average export values of the FPESA product portfolio for the surveyed beneficiaries that employed instruments of Components 2 and 3 between 2007 and 2011 are presented in Table 5.1 and 5.2, respectively (Donoso et al., 2013).

Component 2 beneficiaries showed a slight increase in exports. However, these increases are highly variable across time, as can be seen in 5.1.

Table 5.1: Variation in Component 2 beneficiary's average export values of FPESA product portfolio

Year	Average beneficiary export values of FPESA product portfolio year t	Average beneficiary export values of FPESA product portfolio year t+1	% Variation
2007	157 796	88 339	-0.44
2008	780 271	979 933	0.26
2009	3 245 588	2 350 959	-0.28
2010	48 596	193 885	2.99
2011	650 083	-	-
Total	1 151 864	1 286 031	0.12

Source: Donoso et al. (2013)

Similarly, a beneficiary's export values increase with their participation in Component 3 initiatives (Table 5.2).

Table 5.2: Variation in the average beneficiaries of Component 3 export values of FPESA product portfolio

Year	Average beneficiary export values of FPESA product portfolio year t	Average beneficiary export values of FPESA product portfolio year t+1	percent Variation
2007	\$22 223	\$25 298	13.84
2008	\$18 543	\$20 556	10.85
2009	\$20 576	\$22 512	9.41
2010	\$362	\$515	42.28
2011	\$23 398	-	-
Total	\$17 021	\$17 221	1.17

Source: Donoso et al. (2013)

5.2 Export product diversification

Participation in the FPESA EPP's Component 3 increased export diversification of each beneficiary, between 2007 and 2011. Each FPESA beneficiary increased the amount of goods exported the year after participating in the FPESA EPP by 4.54 percent.

Table: 5.3: Degree of export product diversification of Component 2 beneficiaries.

Año	Average number of exported products per FPESA beneficiary year t	Average number of exported products per FPESA beneficiary year t +1	% Variation
2007	10.2	11.13	9.11
2008	7.92	8.88	12.12
2009	9.22	9.24	0.21
2010	3.8	4	5.26
2011	8.39	-	-
Total	9.04	9.45	4.54

Source: Donoso et al. (2013)

Participation in the FPESA EPP's Component 3, on the other hand, has presented a lower variation (percent) in the number of exported goods (slightly increased export diversification of each beneficiary; between 2007 and 2011, each FPESA beneficiary increased the number of exported goods volume of exported goods the year after of participating in the FPESA EPP in 4.54 percent.

Table: 5.4: Degree of export product diversification of Component 3's beneficiaries

Year	Average number of exported products per FPESA beneficiary year t	Average number of exported products per FPESA beneficiary year t +1	percent Variation
2007	1.33	1.57	0.15
2008	2.17	2.29	0.05
2009	3.50	3.92	0.11
2010	1.33	1.67	0.20
2011	3.09	3.09	-
Total	2.84	2.46	0.13

Source: Donoso et al. (2013)

5.3 Foreign market diversification

There is no evidence of a higher foreign market diversification for both component 2 and 3 (see Table 5.4 and Table 5.5).

Table: 5.4: Degree of market diversification of Component 2 beneficiaries.

Year	Average number of foreign markets per FPESA beneficiary year t	Average number of foreign markets per FPESA beneficiary year t +1	% Variation
2007	2.43	1.56	-0.36
2008	2.71	2.71	-
2009	3.88	4.94	0.28
2010	2.33	2.33	-
2011	3.91	-	-
Total	3.41	3.40	-0.00

Source: Donoso et al. (2013)

Table: 5.5: Degree of market diversification of Component 3 beneficiaries.

Year	Average number of foreign markets per FPESA beneficiary year t	Average number of foreign markets per FPESA beneficiary year t +1	% Variation
2007	14.98	14.58	-0.03
2008	12.87	12.87	-
2009	16.85	17.90	0.06
2010	4.80	5.50	0.15
2011	16.23	-	-
Total	15.15	15.22	0.01

Source: Donoso et al. (2013)

6 Impact assessment

Impact assessments of public programs provide information to government officials on whether the program has achieved its goal. They are also used when deciding on whether to expand, modify or eliminate project categories. This process allows decision makers to evaluate public programs underlying project design and to determine whether to replicate interventions of evaluated themes in other countries. Thus, impact assessment is an aid to political decision-making, not a substitute

for it. The information generated by the assessment process guides the allocation of resources and allows for the design of remedial actions to improve the impact of the programs. Impact assessments have been the pillars of the public administration model since the 1990s, and have been widely applied in member countries of the OECD (Perrin, 2003).

Impact assessments are made up of a set of logical steps to be followed to assess different policy programs. It is a process that prepares evidence for political decision-makers on a program's performance. In this regard, a key aspect of the evaluation is to determine whether the services and resources provided by the program effectively contribute to achieving the expected benefits on the beneficiaries. It is thus vital to identify the causality between the components of the program and the expected final results.

The results of an intervention can be evaluated *ex-ante* or *ex-post*. In the first case, the results are evaluated before the fact, during the design stage of the interventions. The purpose of this *ex-ante* evaluation is to support investment decision-making and resource allocation. This type of evaluation involves a simulation or prospective analysis of the results that the interventions will generate.

On the other hand, an *ex-post* evaluation assesses the results generated after the program has been implemented. Some effects in the short and medium term can be quantified during the operation of the project or once the operation has been completed; by contrast, the impacts can generally only be quantified after a long period of time once the beneficiary has received the intervention. Measurement of *ex-post* effects provides information on the performance of intervention. That is, they help determine to what extent the intervention has obtained the expected results in accordance with established objectives and goals (OECD, 2001).

Mayne (2001) suggests using contribution analysis as one approach to assess outcomes. He summarized this approach as follows:

Step 1: Develop the results chain	Describe the program theory model/program logic/results chain describing how the program is supposed to work. Identify as well the main external factors at play that might account for the outcomes observed. This program theory should lead to a plausible association between the activities of the program and the outcomes sought. Some links in the results chain will be fairly well understood or accepted. Others will be less well understood or subject to explanations other than that the program was the “cause.” In this way you acknowledge that attribution is indeed a problem.
Step 2: Assess the existing evidence on results	The results chain should provide a good idea of which intended results (outputs, intermediate and end outcomes) could be measured. What evidence (information from performance measures and evaluations) is currently available about the occurrence of these various results? The links in the results chain also need to be assessed. Which are strong (good evidence available, strong logic, or wide acceptance) and which are weak (little evidence available, weak logic, or little agreement among stakeholders)?
Step 3: Assess the alternative explanations	Outcomes by definition are influenced not only by the action of the program but also by external factors — other programs, as well as social and economic factors. In addition to assessing the existing evidence on results, there is a need to explicitly consider the extent of influence these external factors might have. Evidence or logical argument might suggest that some have only a small influence and that others may have a more significant influence on the intended results.
Step 4: Assemble the performance story	With this information, you will be able to set out your performance story of why it is reasonable to assume that the actions of the program have contributed (in some fashion, which you may want to try and characterize) to the observed outcomes. How credible is the story? Do reasonable people agree with the story? Does the pattern of results observed validate the results chain? Where are the main weaknesses in the story? There always will be weaknesses. These point to where additional data or information would be useful.
Step 5: Seek out additional evidence	To improve your performance story, you will need additional evidence. This could involve information on both the extent of occurrence of specific results in the results chain and the strength of certain links in the chain. A number of strengthening techniques that you might be able to adopt are outlined in this work.
Step 6: Revise and strengthen the performance story	With the new evidence, you should be able to build a more credible story, one that a reasonable person will be more likely to agree with. It will probably not be foolproof, but will be stronger and more credible.

Mayne (2001)

Step 1 establishes that it is vital to determine the benefits that beneficiaries obtain once they conclude their participation in the program. Kristensen (2001) indicates that: “Outcomes reflect the

intended and unintended results of government actions and provide the rationale for government interventions.”

A final result is usually expressed as a medium and long term benefit obtained by the program’s beneficiaries. The final aggregate results of Chile’s export promotion program are:

1. Agricultural, animal production, and forestry export levels
2. Foreign market diversification

On the other hand, final results at a firm’s level are

3. Foreign market knowledge
4. Foreign firm contact levels
5. Knowledge of foreign firm representatives
6. Development of commercial alliances

Under Step 3 it is necessary to distinguish the benefits achieved as a result of the intervention of the program from those that would have occurred anyway without the beneficiary’s participation, due to the normal evolution of the environmental and economic conditions or the action of other public or private programs. For this purpose, an impact assessment compares the group of beneficiaries of the program a non-participating group that meets the selection criteria of these programs. This implies that non-participants are potential beneficiaries of the program or part of the objective of the intervention population see Annex 1 for a detailed description of impact assessment methodology).

More detail on impact assessment methodologies is presented in the Annex of this report. Other good references are:

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2. Heckman, J., Richard Robb, 1985. Alternative methods for evaluating the impact of interventions, *Journal of Econometrics*, Volume 30, Issue 1: 239-267, ISSN 0304-4076, [http://dx.doi.org/10.1016/0304-4076\(85\)90139-3](http://dx.doi.org/10.1016/0304-4076(85)90139-3).
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6.1 Impact assessment of FESA's instruments

The impact assessment of each instrument was based on an estimation of a propensity score matching (PSM), which is a statistical matching technique that estimates the effect of a treatment policy¹⁴ by accounting for the covariates that predict receiving the treatment. PSM reduces the bias of estimating the treatment effect by simply comparing outcomes among units that received the treatment versus those that did not (see Annex 1).

Donoso et al. (2013) employed an unbounded optimal matching. In a bounded matching, a treated subject is first selected at random. The untreated subject whose propensity score is closest to that of this randomly selected treated subject is chosen for matching to this treated subject. This process is then repeated until untreated subjects have been matched to all treated subjects or until one has exhausted the list of treated subjects for whom a matched untreated subject can be found. This process is called bounded matching because at each step in the process, the nearest untreated subject is selected for matching to the given treated subject, even if that untreated subject would better serve as a match for a subsequent treated subject. The unbounded optimal matching, on the other hand, matches so as to minimize the total within-pair difference of the propensity score (Rosenbaum, 2002).

The methodology considered to select untreated subjects whose propensity score is close to that of a treated subject was based on nearest neighbor matching without considering the restriction that

¹⁴ Participation in the EPP through a specific instrument.

the absolute difference in the propensity scores of matched subjects must be below a pre-specified threshold.

An essential issue is to define the time that it takes for the results to manifest (after implementing the EPP instrument). Not all EPP instruments required the same time period for impacts to manifest themselves. On this basis, a need for an evaluation horizon for FPESA is anticipated. This will depend on the outcome or impact evaluated, because the type of outcome to evaluate assessment determines the horizon. Donoso et al. (2013) determined a one-year horizon.¹⁵

As ProChile's EPP instruments focus on exporting firms or those that show export potential, the beneficiaries are selected from a pool of companies that have made use of at least one of the instruments during the period proposed for evaluation. Similarly, the comparison group or control group are selected from those companies that have never participated in FPESA but present similar characteristics to those that have participated. The counterfactual group consists of companies that are not clients of ProChile, that is, have not made use of any of the evaluated EPP instruments. Given that for ProChile, a firm that is not a client corresponds to those that have not participated in the EPP in the past three years, these firms present similar participation probabilities.

Donoso et al. (2013) estimated the impacts of the following Component 3: EPP instruments¹⁶

1. Strategic plans
2. National tenders
3. International fairs participation and product exposition and tasting
4. Participation in any of FPESA's instruments

The impact variables that were assessed for each EPP instrument are:

1. Foreign market knowledge
2. Foreign firm contact levels
3. Knowledge of foreign firm representatives
4. Development of commercial alliances

¹⁵ An additional consideration was that considering a longer horizon could reduce the number of matched firms since exporting firms that have not taken advantage of ProChile's EPP instruments will most likely change their status from counterfactual to treated. Thus, considering long horizons reduces the feasibility of estimating the impacts of ProChile's instruments.

¹⁶ The final matched sample size for Component 2 was not enough to conduct an unbiased and efficient impact assessment.

Tables 6.1.1 – 6.1.4 present the impact assessment results. In all cases, no significant impact is identified the year after a firm's participation in this instrument. Some impact variables present counterintuitive results, since the results indicate that impacts tend to be negative; this is the case of foreign firm contact levels for the strategic plans FPESA instrument, foreign market knowledge for national tenders an international fairs participation and Product exposition and tasting instruments, for example.

Table 6.1.1: Impact assessment of Strategic Plans FPESA instrument

Impact Variable	Obs.	Beneficiary mean value	Counterfactual mean variable	Diference	T stat	Significance
Foreign Market Knowledge	302	1.4333	1.2222	0.2111	0.36	
Foreign firm contact levels	299	1.3707	1.4569	-0.0862	-0.12	
Knowledge of foreign firm representatives	300	0.7833	1.0833	-0.3	0.37	
Development of comercial alliances	303	0.68	1.9867	-1.3067	-0.48	

*** 1% significance level, ** 5% significance level, * 10% significance level

Table 6.1.2: Impact assessment of National Tenders FPESA instrument

Impact Variable	Obs.	Beneficiary mean value	Counterfactual mean variable	Diference	T stat	Significance
Foreign Market Knowledge	302	1.1313	1.1758	-0.0444	-0.06	
Foreign firm contact levels	299	0.9009	0.4387	0.4623	0.59	
Knowledge of foreign firm representatives	300	0.9858	0.8774	0.1085	0.14	
Development of comercial alliances	303	0.3429	1.7536	-1.4107	-0.97	

*** 1% significance level, ** 5% significance level, * 10% significance level

Table 6.1.3: Impact assessment of International Fairs Participation and Product exposition and tasting

Impact Variable	Obs.	Beneficiary mean value	Counterfactual mean variable	Diference	T stat	Significance
Foreign Market Knowledge	302	1.0494	1.190	-0.1407	-0.17	
Foreign firm contact levels	299	0.9767	0.2267	0.75	0.86	
Knowledge of foreign firm representatives	300	0.8198	0.9360	-0.1163	-0.14	
Development of comercial alliances	303	0.2174	1.5957	-0.8046	-0.98	

*** 1% significance level, ** 5% significance level, * 10% significance level

Table 6.1.4: Impact assessment of FPESA Component 3 instruments

Impact Variable	Obs.	Beneficiary mean value	Counterfactual mean variable	Diference	T stat	Significance
Foreign Market Knowledge	302	1.2379	1.1922	0.0458	0.07	
Foreign firm contact levels	299	1.0671	0.7988	0.2683	0.39	
Knowledge of foreign firm representatives	300	0.9127	0.9518	-0.0392	-0.06	
Development of comercial alliances	303	0.4605	1.8349	-1.3744	-0.99	

These results are probably due to the short horizon considered. A one year period is not likely to be sufficient for a significant change. An additional explanatory factor is the memory bias associated with requesting information of previous years. For example, the survey was conducted during 2012 and some of the questions referred to the firm's situation during 2007, so as to characterize the beneficiary and counterfactual's situation the previous year of the participation. Given this possible

bias, one of the recommendations was that ProChile characterize a base line and estimate impacts in the future with this information.

6.2 Impact assessment of Chile’s Sectoral Export Promotion Program

6.2.1 *Agricultural, animal production, and forestry export values*

During the last decade (2006 – 2015), Chile’s agricultural, animal product, and forestry exports increased in 104.5 percent, from USD 7.5 million in 2006 to USD 15.4 million in 2015 (Figure 6.2.1).

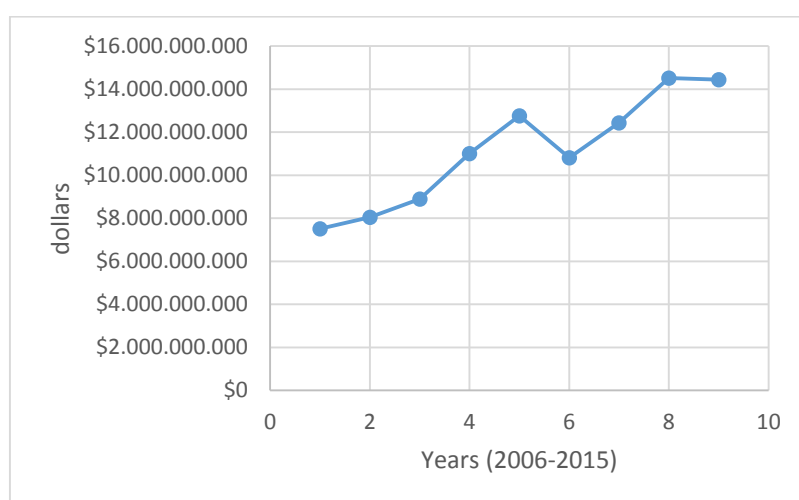


Figure 6.2.1: Agricultural, animal production, and forestry export values between 2006 and 2015 (ODEPA, 2015)

However, it is important to note that this increase cannot necessarily be attributed to FPESA. In order to quantify how much of this increase is due to FPESA, Donoso (2013) estimated the direct impact of Chile’s EPP (FPESA) on the FOB Value of Exports between 1990 and 2011, employing a spline regression,¹⁷ considering the implementation of FPESA as the structural change. Spline multivariate regressions are used to measure the impact of a treatment on a “response”. In our case, the response is on the FOB Value of Exports.

Formally, Donoso et al. (2013) estimated

¹⁷ Spline multivariate regressions are used to measure the impact of a treatment on a “response”. In our case, the response FOB Value of Exports. Annex 2, presents the employed spline methodology.

$$y = \alpha_o + \beta_o t + \gamma_1 d_1(t - t_1) + \varepsilon \quad (6.2.1)$$

The results show that $\hat{\gamma}_1(dt)$ is positive and significant (Table 6.2.1) meaning that FPESA had a significant impact on the FOB Value of Exports between 1990 and 2011; that is, as of its implementation, the rate of growth of the FOB Value of Exports significantly increased.

Table 6.2.1: Spline regression for agricultural, animal production, and forestry export values.

Source	SS	df	MS	Number of obs = 22		
Model	2.8325e+14	2	1.4163e+14	F(2, 19) = 322.08		
Residual	8.3547e+12	19	4.3972e+11	Prob > F = 0.0000		
				R-squared = 0.9713		
				Adj R-squared = 0.9683		
Total	2.9161e+14	21	1.3886e+13	Root MSE = 6.6e+05		
total_silv~o	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ao	224955.1	47125.57	4.77	0.000	126320.2	323590.1
dt	675774.1	89138.08	7.58	0.000	489205.9	862342.2
_cons	-4.45e+08	9.41e+07	-4.73	0.000	-6.42e+08	-2.48e+08

Source: Donoso et al. (2013)

6.2.2 Agricultural export values

The agricultural sector represents the majority of the total agricultural, animal product, and forestry exports exported amount (55 percent). As was the case with agricultural, animal product, and forestry exports, agricultural exports increased between 1990 and 2011; however, agricultural exports increase in 636.65 percent, from USD 1.1 million in 1990 to USD 8.2 million in 2011 (Figure 6.2.2).

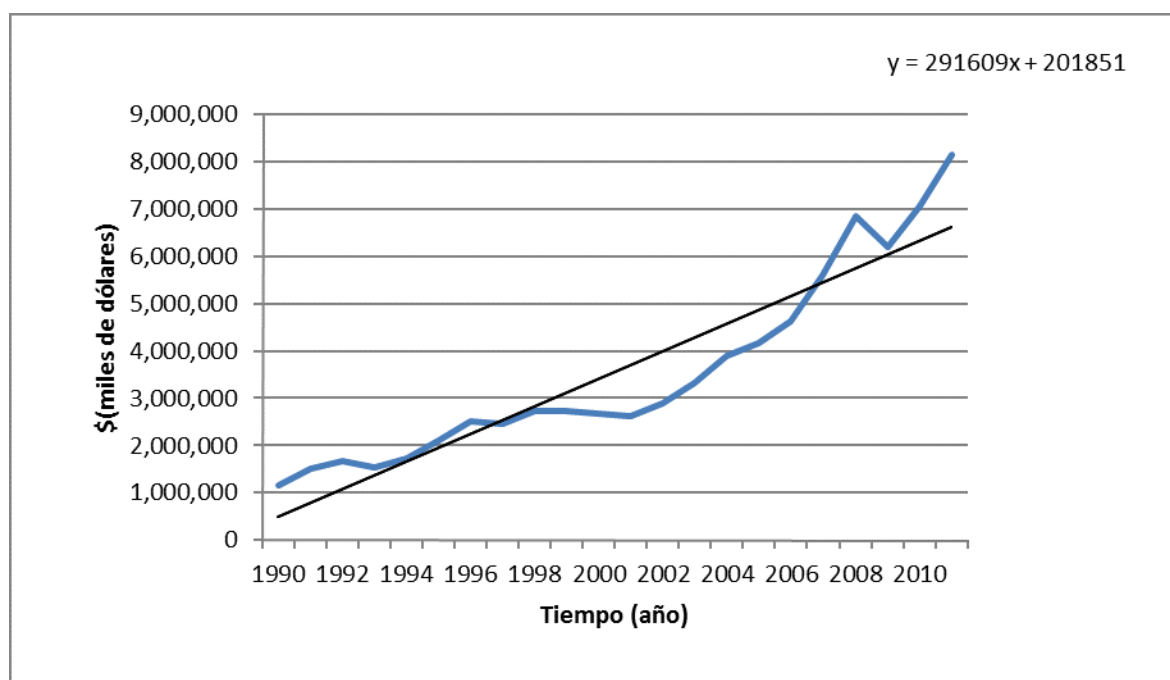


Figure 6.2.2: Agricultural export values (Donoso et al., 2013)

The estimation of a spline regression, considering the implementation of FPESA as the structural change, indicates that FPESA has had a significant impact on agricultural export values. That is, agricultural export values have grown at higher rate than they would have without ProChile's EPP (Table 6.2.2).

Table 6.2.2: Spline regression for agricultural export values

Source	SS	df	MS	Number of obs = 22		
Model	8.3792e+13	2	4.1896e+13	F(2, 19) = 334.68		
Residual	2.3784e+12	19	1.2518e+11	Prob > F = 0.0000		
				R-squared = 0.9724		
				Adj R-squared = 0.9695		
Total	8.6170e+13	21	4.1033e+12	Root MSE = 3.5e+05		
agricola	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ao	109125.7	25144.1	4.34	0.000	56498.44	161752.9
dt	391730.8	47560.11	8.24	0.000	292186.4	491275.3
_cons	-2.16e+08	5.02e+07	-4.30	0.000	-3.21e+08	-1.11e+08

Source: Donoso et al. (2013)

6.2.3 Wine and fruit export values

Similar results were obtained for wine and fruit sub-sector exports (Tables 6.2.3 and 6.2.4), where spline regressions indicate that participation in FPESA EEP has significantly boosted each sub-sector's export levels (Donoso et al., 2013).

Table 6.2.3: Spline regression for wine export values

Source	SS	df	MS	Number of obs = 22		
Model	7.3617e+12	2	3.6809e+12	F(2, 19)	=	432.92
Residual	1.6154e+11	19	8.5023e+09	Prob > F	=	0.0000
				R-squared	=	0.9785
				Adj R-squared	=	0.9763
Total	7.5233e+12	21	3.5825e+11	Root MSE	=	92208
vinos_monto	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ao	23501.45	6552.937	3.59	0.002	9785.999	37216.91
dt	132010.5	12394.89	10.65	0.000	106067.7	157953.3
_cons	-4.68e+07	1.31e+07	-3.58	0.002	-7.42e+07	-1.94e+07

Source: Donoso et al. (2013)

Table 6.2.4: Spline regression for fresh fruit export values

Source	SS	df	MS	Number of obs = 22		
Model	1.8941e+13	2	9.4707e+12	F(2, 19)	=	324.83
Residual	5.5396e+11	19	2.9156e+10	Prob > F	=	0.0000
				R-squared	=	0.9716
				Adj R-squared	=	0.9686
Total	1.9495e+13	21	9.2835e+11	Root MSE	=	1.7e+05
fruta_fres~o	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ao	43665.59	12134.74	3.60	0.002	18267.28	69063.89
dt	201094.8	22952.88	8.76	0.000	153053.9	249135.7
_cons	-8.60e+07	2.42e+07	-3.55	0.002	-1.37e+08	-3.53e+07

Source: Donoso et al. (2013)

7 Conclusions

International trade is widely recognized as an important development driver. Over the past two decades, international competition has significantly increased and, thus, export promotion agencies have become key agents in helping companies to overcome the lack of knowledge of foreign markets, regulations and practices, reduce their risk perception associated to foreign markets, increase the number of exporting firms (specially SMEs), increase and diversify export products and markets. However, the design of trade promotion programs is a key determinant of

their effectiveness. The purpose of this manuscript is to document Chile's export promotion experience as an input in the debate and design of an export promotion strategy for Moldova.

The National Development Strategy "Moldova 2020", proposes the objective of accelerating economic growth and reducing poverty in the Republic of Moldova. The Republic of Moldova and the European Union (EU) signed an Association Agreement, including the Deep and Comprehensive Free Trade Area (DCFTA) in June of 2014. This allows for the integration of Moldova with the common EU market.

However, at present, Moldova's export structure is concentrated only on few products; namely wine, nuts, grains and oil seeds. At the same time, in recent years some processed food products have started to be exported to the EU and EFTA countries, namely "Sugar and sugar confectionery", "Preparations of cereals", "Products of the milling industry", "Cocoa and cocoa preparations", "Residues and waste from the food industries" and "Natural honey". Thus, there is a potential for increasing exports to EU and EFTA countries.

In this context, and considering the economic and social benefits of higher exports, increasing exports is a priority in Moldova. Thus, there is interest in studying export promotion programs and its results and impacts on:

1. Increase in the intention to export
2. Increase opportunities for initial exporters
3. Increase the success rate of initial exporters
4. Increase export levels
5. Diversify exports

Chile provides a number export promotion instruments. The Chilean Trade Commission (ProChile) is the country's export promotion agency. It is one of three divisions of Dirección General De Relaciones Económicas Internacionales (Direcon). ProChile's mission is to support and advance Chilean business interests in the global marketplace by assisting in the development of the export process. The agency is responsible for establishing international business relationships, and for providing market research, international trade data, and sales leads for the export industry. It emphasizes the promotion of non-traditional products.

ProChile has 14 offices in Chile and 59 trade offices or trade representative offices in 38 countries. Some are located with diplomatic missions and others are freestanding commercial offices. Chile's

largest presence is in Latin America (16 countries), Europe (13), Asia (8) and the Australasian region (5). It has three offices in the United States and two in Canada.

ProChile establishes priorities through a combination of market analysis and collaboration with industry associations. Market priorities are allocated to sectors or products that present the highest potential for export growth, especially those for which free trade agreements are in effect. The most important markets are North America and the EU. Additionally, sector priorities are set based on the best match of export firm's capabilities with target demand markets. Second-level priorities are determined through consultations with industry associations based on each sector's business needs and priorities. The governing policy is to give priority to markets with the most potential for export growth, especially those where free trade agreements are in effect. Priority sectors are those with the best match of capabilities with the demands of those markets.

The analysis of the design and operation of FPESA, leads to the identification of the following critical factors that should be considered when Moldova designs EPPs. Consideration of these elements incorporates the lessons learnt from this EPP.

1. Importance of a participative and inclusive Council.
 - a. It is positive that an EPP considers a Council that works with representatives of the public agency in charge of the EPP and representatives of agricultural and food trade associations. This inclusive approach allows the Council to establish effective and adequate EPP program objectives and strategies. In addition, this body must play a decisive role in the analysis and approval of the programs to be supported by the EPP.
 - b. However, the second function opens the possibility of conflicts of interest in that the represented trade associations in the Council are also beneficiaries of the EPP. These potential conflicts of interest must be considered when choosing the representatives of the private sector.
2. Establish targets for each instrument.
 - a. ProChile has no defined production targets for their EPP instruments, which is not adequate. Without specific targets, the Program cannot evaluate its progress in its strategic plan. Reyes (2009) reached similar conclusions and recommended that

ProChile establish targets for each instrument; however, evidence shows that there has been no progress in this area.

- b. Thus the design of an EPP by any country must consider periodic establishment of targets for each of the instruments.
3. EPP initiatives allocated by an open and transparent tender system.
 - a. Allocation of funds to firm's applications through a public tender system is a positive aspect of FPESA. This selection procedure reduces potential selection discrepancies.
 - b. As previously analyzed, despite FPESA's own strategic definitions, the direct allocation of EPP initiatives has presented some degree of discrepancy in the evaluation process, and consequently, in the allocation of funds. Additionally, through an open and transparent tender system, the Council should select and approve the proposals.
 - c. This system requires the definition of clear operational rules in terms of eligibility criteria and selection criteria to be used for the evaluation of proposals.
 - d. The program must minimize direct allocation as exceptions to the tender system. The coexistence of a parallel direct allocation mechanism to the tender allocation, weakens the transparency of the system, since: (a) these programs are not subject to the same evaluation system, (b) these programs are not subject to the same presentation requirements and deadlines, and; (c) access to an EPP's funds through direct allocation is, in general, not widely known in the universe of beneficiaries of the EPP.
4. Prevent focusing on a specific foreign market or export sector.
 - a. Official definitions of FPESA clearly state that the essential purpose of this program is to provide access to more companies and more products to more international markets. However, in fact more than two thirds of the program's resources have been allocated to markets that have already been conquered. Moreover, there has been a focus over time on a reduced number of sectors such as, fresh fruits and wine.
 - b. The design of future EPP programs must establish criteria to prevent permanent support to the same markets and sectors. The marginal impact of permanently

funding initiatives in a market or sector decreases over time. Thus, the EPP must consider a phase out procedure; for example, by decreasing support over time.

5. Develop the necessary export capacities.
 - a. FPESA has provided important export support to companies or groups of companies that lack the minimum necessary capacities to insert themselves into international markets and to maintain their participation over time.
 - b. However, evidence shows that a number of beneficiaries do not maintain their participation in foreign markets over time. This is especially evident in the case of SMEs.
 - c. An EPP Program must consider an effective capacity development program, especially for SMEs, before supporting specific export initiatives, so as to ensure the permanency of these beneficiaries over time.
6. Establishment of a mechanism to systematically update the programs objectives, strategies and instruments over time.
 - a. The relatively high percentage of the potential population that has not yet been addressed by FPESA indicates that the program has not adequately responded to exporting firms' requirements and changing environments.
 - b. Many SMEs have not achieved the desired effects, since the EPP program has not been systematically adjusted to changing conditions. For example, several countries — especially Latin American countries — have increased their efforts to promote exports. These initiatives affect the effectiveness of the originally designed support instruments and strategies for Chilean export firms.
 - c. Thus, EPPs must incorporate a mechanism to systematically update the programs objectives, strategies and instruments over time.
7. Consider a well-designed performance and impact assessment program.
 - a. Quantitative evaluation of the effects of export promotion activities has, in general, not been rigorous in many countries, meaning that reliable impact estimates are lacking.
 - b. This manuscript reviewed several rigorous impact assessments of Chile's EPP. The findings indicate that the program has responded to the need to improve the diversity of products and expand export markets and exporters or potential exporters.

- c. The impact assessment concluded that it has generated significant impacts by increasing agricultural exports and diversifying markets. Thus, export promotion has worked well for Chile by helping firms diversify their exports, markets and export levels.
- d. The design of Moldova's EPP must establish a periodic outcome and impact assessment program.
 - i. The EPP must explicitly consider a specialized unit that will be responsible of the periodic monitoring and evaluation
 - ii. The outcome assessment should consider the following elements:
 - 1. Program's design: Is it responding to the programs purpose and exporters needs?
 - 2. Program's performance
 - a. Production level of each component
 - b. Beneficiary targeting approach
 - c. Coverage of potential beneficiary population
 - d. Resource Allocation Criteria
 - e. Achievement of the EPPs purpose
 - f. Degree of satisfaction of beneficiaries
 - g. Analysis of the EPPs continuity justification.
 - iii. The impact assessment should
 - 1. Employ methodologies based on matching or difference in difference as described in this report.
 - 2. Characterization of a base line and estimate impacts in the future with this information.

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9 Annex

9.1 Impact Assessment Methodology

Thus the impact of a program is quantified by estimating:

$$\Delta_i = Y_{1i} - Y_{0i} \quad (\text{A.1.1})$$

Where Δ_i represents the impact of the program, Y_{1i} is the actual situation of the i -th beneficiary under "treatment," therefore, it indicates the conditions reached by the person who participated in the program. On the other hand, Y_{0i} represents the condition the same i -th person would have reached in the "lack of treatment," *ie*, in the absence of the program. Unfortunately, the impact of the program expressed in this way cannot be observed directly, since only one of the two conditions is observed for the i -th person at a given moment in time. For example, we have information for each of the beneficiaries who participated in the program, Y_{1i} , but not on their situation had they not participated, Y_{0i} . This limitation is known as the "fundamental identification problem."

One solution to this problem is to measure the average expected impact on a group of people with certain individual characteristics, contained in the X vector, and are chosen randomly from the population to participate in a program or treatment. This can be expressed as:

$$E(\Delta|X) = E(Y_1 - Y_0|X) = E(Y_1|D=1) - E(Y_0|D=0) = \beta_1 X + \beta_0 X \quad (\text{A.1.2})$$

where $E(\Delta|X)$ is the average impact of the program (Average Treatment Effect, ATE), Y_0 is the level of the result variable of the people who have not participated in the program, Y_1 is the potential outcome after the intervention of the program on those individuals who participated in the program, D is a binary variable that takes the value of "1" if the person has participated in the program and "0" otherwise. Thus, $E(Y_1|D=1)$, is the expected outcome for the individuals who

participated in the program and $E(Y_0|D=0)$, is the expected result for those who did not participate in the program.

Alternatively, it is possible to assess the impact through the average treatment effect on individuals who have participated in the program or treatment (Average effect for treated individuals, AETT) which can be expressed as:

$$E(\Delta|X, D=1) = E(Y_1 - Y_0|X, D=1) = \beta_1 X - \beta_0 X + E(\varepsilon_1 - \varepsilon_0|X, D=1) \quad (A.1.3)$$

Equation (3) quantifies the average effect for those who chose to participate in the program, compared with the result that they would have experienced had they not participated in the program. This expression differs from ATE (equation (2)) in the additional term $E(\varepsilon_1 - \varepsilon_0|X, D=1)$.

For each person we can only observe the actual response, Y (Angrist and Imbens, 1991) defined as:

$$Y = DY_1 + (1-D)Y_0 \quad (A.1.4)$$

where

$$E(Y_1|X) = \beta_1 X \quad (A.1.5)$$

$$E(Y_0|X) = \beta_0 X \quad (A.1.6)$$

Equations (5) and (6) represent the expected outcome of those involved and those who do not participate in the program, respectively. Furthermore, X is a vector of individual characteristics. Thus, equations (5) and (6) can be expressed as:

$$Y_1 = \beta_1 X + \varepsilon_1 \quad (A.1.7)$$

$$Y_0 = \beta_0 X + \varepsilon_0 \quad (A.1.8)$$

where $E(\varepsilon_1) = 0$ and $E(\varepsilon_0) = 0$. Replacing (7) and (8) in (4) leads to

$$Y = \beta_0 X + D(\beta_1 X - \beta_0 X + (\varepsilon_1 - \varepsilon_0)) + \varepsilon_0 \quad (\text{A.1.9})$$

$[\beta_1 X - \beta_0 X + (\varepsilon_1 - \varepsilon_0)]$ which multiplies the binary variable D corresponds to the effect of participating in the program. This effect has two components: $\beta_1 X - \beta_0 X$ which is the result on the average person who has a set of individual characteristics, X , and $(\varepsilon_1 - \varepsilon_0)$ which is the idiosyncratic effect on everyone, that is, the effect in response to unobservable individual characteristics at the time of an impact assessment (as skills or abilities).

However, comparisons of the response variables between beneficiaries and those who did not participate in the program does not usually offer a correct answer (Cansino and Sanchez, 2004). To overcome this limitation, equation (9) can be reformulated as:

$$Y = \beta_0 X + D[E(\Delta|X)] + [\varepsilon_0 + D(\varepsilon_1 - \varepsilon_0)] \quad (\text{A.1.10})$$

where $[\varepsilon_0 + D(\varepsilon_1 - \varepsilon_0)]$ is the error term.

In expression (10), the term $E(\Delta|X)$ which multiplies D represents the difference between the average values for those who participated and did not participate in the program, conditioned on the vector of individual characteristics X , ie:

$$\begin{aligned} E(Y|X, D=1) - E(Y|X, D=0) &= E(Y_1|X, D=1) - E(Y_0|X, D=0) \\ &= E(Y_1 - Y_0|X, D=1) + [E(Y_0|X, D=1) - E(Y_0|X, D=0)] \end{aligned} \quad (\text{A.1.11})$$

Equation (11) compares the mean response of the individuals who have participated in the program with the average of those who did not participate. The first term corresponds to the value of the average effect of the program on the beneficiaries, while the second represents the selection bias. Thus, the bias is determined by the difference between the mean response variable for people who have been in the program with the response had they not been in the program, and the mean of the response for people who have not participated in the program. In most cases the term representing the selection bias is not zero as program participants meet certain eligibility

criteria or characteristics that differentiate them from non-participants of the program (Cansino and Sanchez, 2004).

For the selection bias to be zero requires that the targeting of the program be random, that is, independent of its potential outcomes. If the selection is random the average expected outcome or impact of the program will be given by:

$$E(Y|X, D=1) - E(Y|X, D=0) = E(Y_1 - Y_0) \quad (A.1.11a)$$

Equation (11a) corresponds to the ATE or average effect of the program for a person with individual characteristics represented in the vector X .

Usually the targeting of a program is not random. On the contrary their selection is based on the application of eligibility criteria and targeting that differentiate, both observable and unobservable characteristics (such as individual ability, willingness to participate and generally other subjective and non-formal characteristics), among those who participate in the program (treatment group) and non-recipients (control group).

This means that the program's impact cannot be measured by simply quantifying the mean difference between the value of the result variable in the treatment group and the control group, as different observable and unobservable characteristics of the beneficiaries and non-beneficiaries imply the existence of selection bias. Therefore, measuring the impact of the program is biased because $E(Y_0|X, D=1) \neq E(Y_0|X, D=0)$. Depending on the magnitude and sign of the bias, one can under or overestimate the impact of a program. In these cases, one can positively assess the outcomes of an intervention when they are negative or vice versa. Thus, the main problem in assessing a program's impact is the selection bias that arises from the non-random assignment of participants in the program.

The methodological problem posed by the existence of selection bias can be overcome by using a quasi-experimental design, which allows to control for different characteristics of the group of beneficiaries of the program (treatment group) and non-beneficiaries (control) that could affect the outcome or impact of the program. To this end there are several methodological alternatives generically called "observational methods" (Cansino and Sanchez, 2004). These observational

methods try to reproduce experimental scenarios from databases of beneficiaries and non-beneficiaries and using advanced statistical techniques. These different methodologies are applied once the program intervention has already taken place, that is, once the beneficiaries of the program using non-random methods were selected. Therefore, in a quasi-experimental design control and treatment group are different. In this sense, the aim of these assessment methodologies is to use sophisticated statistical methods to control, eliminate, or minimize these differences.

There are three main observational methods described in the literature. The first selection method includes three different types of procedures: subclassing, matching estimators, and propensity score estimation. The second observational methods uses the "difference in difference" method. Finally, the third method is the use of instrumental variables in assessing the impact of a program (Cansino and Sanchez, 2006).

Observational methods usually are based on the allocation of people in the sample between two groups: individuals who have been exposed to the effects of treatment (treatment group) and the group consisting of people who did not participate (control group). Ideally, the individual characteristics of the people in the sample should be identical. Often, however, the development of evaluation demonstrates that people in the treatment group and the control group differ in characteristics that are unobservable. In this case, observational methods based on the selection based on observable characteristics (subclassing, matching estimators, and propensity score calculation) are not entirely adequate to estimate the causal effects of the evaluated program. Estimates based on the method of differences in differences can overcome this difficulty. The use of difference-in-difference estimator to estimate the effect of public programs has become quite popular. Several studies describe the use of this method and detail the methodology used (for example, Meyer, 1995, Angrist and Krueger, 2000 and Blundell and MaCurdy, 2000).

Observational methods detect changes in the values of the relevant impact variables. Such variations can result from the observations recorded on the same people before and after participating in a program. So, after detecting the existence of unobservable distinguishing features between people in the treatment group and assigned to the control group, the results observed in the response variable are compared and beneficiaries, both before undergoing the program and after finalized. In summary, it is assumed that the observations recorded before the program is

executed and registered after its development will be equally influenced by differentiating unobservable variables.

The difference in difference estimator calculates the difference in the response variable of beneficiaries between their values before and after the program (first difference), and the difference with respect to the variation produced in the variable response for those included in the control group (second difference) (Heckman et al., 1998). However, this method is the most demanding in terms of information since the baseline data are not always available and follow-up studies, usually face the problem that it is difficult to locate individuals from the original sample, especially in the case of non-recipients.

The difference in difference estimator can be obtained by estimating a semi-parametric model. The regression model used to obtain the differences in differences estimator is presented below. For more details, see Ashenfelter and Card (1985) and Abadie (2005).

$$Y = \gamma_0 + \gamma_D D + \gamma_T T + \gamma_{DT} DT + \nu \quad (\text{A.1.12})$$

where Y is the dependent variable which collects the potential outcomes of people whether or not they participated in the program, D is an explanatory variable of binary nature, which takes the value "1" if the person participates in the program (treatment group) and the value "0" if the person does not participate in the program (control group), T is another explanatory variable binary character, which takes the value "1" if the person is observed after the implementation of the program (treatment group) time and the value "0" if the person is observed previous to their participation in the program, DT corresponds to interaction of binary variables D and T, so this variable is binary and takes the value "1" when the observation refers to a person who participates in the program and is observed ex-post to having participated in the program, and the value "0" for the remaining cases, finally, ν is the error term of the model with an expected value equal to zero. In equation (A.1.12) γ_{DT} corresponds difference in difference estimator of the average treatment effect for those who participated in the program.

The model presented in equation (12) can include explanatory variables describing the beneficiary, control and their environment. Denoting by X the matrix of these predetermined variables, equation (A.1.12) it can be reformulated as:

$$Y = \gamma_0 + \gamma_D D + \gamma_T T + \gamma_{DT} D T + \delta' X + \omega \quad (\text{A.1.13})$$

In the case that the predetermined variable contained in the matrix X does not vary over time, that is, its value remains constant before and after the program, the incorporation of such a covariate in the model does not affect the robustness of the estimator. However, if the variable included changes over time in response to the execution of the program, the difference in difference estimator is not suitable because the regression model presents an endogenous variable.

However, this methodological problem can be overcome introducing the interaction between the endogenous variable and T , which indicates the point in time at which the person is observed. In this case, (13) becomes

$$Y = \gamma_0 + \gamma_D D + \gamma_T T + \gamma_{DT} D T + T \delta_0' X + (1-T) \delta_1' X + \omega \quad (\text{A.1.14})$$

Other possibilities are to replace the endogenous variable with its lagged value or with an instrumental variable.

In order to obtain the difference in difference estimator of the impact of a program it is necessary to build two scenarios. A counterfactual scenario which is the scenario without program and the scenario with the program. The construction of the counterfactual scenario is achieved through the creation of a control group consisting of people, the same or very similar to those beneficiaries whose only difference is they have not participated in the program. This seeks to respond in an accurate manner the question of what would the situation of these beneficiaries had they not participated in the program, comparing the final results of program beneficiaries with the control group.

The construction of the counterfactual employs the methods of matching. This generates a control group with which to compare the effect of the program on beneficiaries. Matching methods use data from non-participants to estimate the expected value of the outcome variable in the absence of the program. One of the main problems of traditional matching methods is the demand for information necessary to identify the beneficiary and control group, based on the variables in the vector of individual and environmental characteristics (X) (see Lalonde, 1986 and Dehejia y Wahba, 1999).

In order to reduce the complexity of forming the treatment and control function groups based on the variables included in X , several studies have proposed and used the propensity score (ie, the probability that the person has or would have participated in the program). This probability reflects the differences in the variables included in X , before the implementation of the program (for details see Rosenbaun and Rubin, 1983).

The propensity score is usually obtained by estimating binary choice nonlinear econometric models (Probit, Logit), for which the entire sample of beneficiaries and non-beneficiaries is used. The method of matching "pairs" or "fits" participants and control group members who belong to a similar socio-economic environment (in terms of the variables in the X vector). The impact of the intervention is measured by the difference between the average results of the group of beneficiaries with the average results the control group. This matching method is useful for the assessment of the impact when there is lack of data on the baseline before the start of the program (Caro, 2005).

The propensity score, defined by Rosenbaum and Rubin (1983), is the probability of treatment assignment (p_i) conditional on observed baseline covariates (x_i);formaly:

$$p_i = Pr(z_i = 1|x_i) \quad (A.1.15)$$

Propensity score matching forms matched sets of treated and untreated subjects who share a similar value of the propensity score (Rosenbaum and Rubin, 1983, 1985). Donoso et al. (2013) implemented the most common propensity score matching based on a one-to-one or pair matching, in which pairs of treated and untreated subjects are formed, such that matched subjects have similar values of the propensity score.

Once a matched sample has been formed, the impact of a program can be estimated by directly comparing outcomes between treated and untreated subjects in the matched sample, based on the difference between the mean outcome for treated subjects and the mean outcome for untreated subjects in the matched sample (Rosenbaum and Rubin, 1983). Following Schafer and Kang (2008), within the matched sample, the treated and untreated subjects are regarded as

independent¹⁸. And thus, a paired *t*-test was used for assessing the statistical significance of the impact of a specific EEP instrument.

There are different methods for forming matched pairs of treated and untreated subjects when matching based on the propensity score. In first place, one must choose to match with or without replacement (Rosenbaum, 2002). When using matching without replacement, once an untreated subject has been matched to a given treated subject, that untreated subject is no longer available for consideration as a potential match for subsequent treated subjects. As a result, each untreated subject is included in at most one matched set. In contrast, matching with replacement allows a given untreated subject to be included in more than one matched set. When matching with replacement is used, variance estimation must account for the fact that the same untreated subject may be in multiple matched sets (Hill and Reiter, 2006).

9.2 Spline Regression Methodology

When examining a large time series of the impact variable, certain patterns with regard to some time periods will become evident. In particular, throughout the time series, export values will be rising, but its slope might change at some distinct milestones, due to a structural change such as the signature of a large free trade agreement (see Figure A.2.1).

¹⁸ This assumption requires that the matching be applied on a common support. The common support is a region where the propensity score values for control subjects are not inferior to the minimum value for treated subjects, and where the values of propensity score for treated individuals are not above the maximum of the control group. That is, it considers the region where propensity score distributions for each control and treatment groups overlap or coincide.

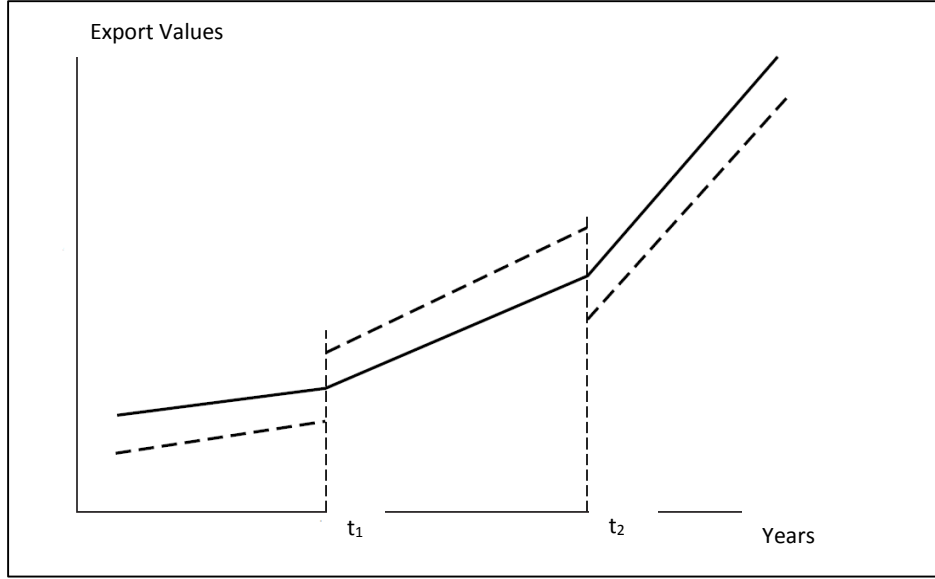


Figure A.2.1: Spline function (Based on Greene (2002))

In Figure A.2.1 the time series shows possible two structural changes that impact export values. In order to estimate these three relationships of export values on time, we could fit three regression models, one for each three subsamples. However, this would neglect the continuity of the proposed function. The result would appear more like the dotted line in Figure A.2.1 than the continuous function which is appropriate. A spline function can be used to estimate the continuous function considering the different time trends due to two interventions (t_1 and t_2).

The function to be estimated is $\forall t \leq t_1 \alpha_o + \beta_o t$

$$E(y|t) = \begin{cases} \alpha_o + \beta_o t & \forall t \leq t_1 \\ \alpha_1 + \beta_1 t & \forall t_1 \leq t \leq t_2 \\ \alpha_2 + \beta_2 t & \forall t \geq t_2 \end{cases} \quad (\text{A.2.1})$$

where y represents export values and t is time. Considering the following two artificial dummy variables:

$$\begin{cases} d_1 & t_1 \leq t \leq t_2 \\ d_1 & t \geq t_2 \end{cases}$$

equation A.2.1 can be rewritten as

$$y = \alpha_o + \beta_o t + \gamma_1 d_1 + \gamma_1 t d_1 + \gamma_2 d_2 + \gamma_2 t d_2 + \varepsilon \quad (\text{A.2.2})$$

However, this estimation yields

$$E(y|t) = \begin{cases} \alpha_o + \beta_o t & \forall t \leq t_1 \\ (\alpha_o + \gamma_1) + (\beta_o + \gamma_1)t & \forall t_1 \leq t \leq t_2 \\ (\alpha_o + \gamma_1 + \gamma_2) + (\beta_o + \gamma_1 + \gamma_2)t & \forall t \geq t_2 \end{cases} \quad (\text{A.2.3})$$

which is equivalent to the dotted line in Figure A.2.1 instead of the continuous line which is the correct representation of the impact of these structural changes. This occurs since we have not considered the following restrictions

$$\alpha_o + \beta_o t_1 = (\alpha_o + \gamma_1) + (\beta_o + \gamma_1)t_1 \quad (\text{A.2.4a})$$

$$(\alpha_o + \gamma_1) + (\beta_o + \gamma_1)t_2 = (\alpha_o + \gamma_1 + \gamma_2) + (\beta_o + \gamma_1 + \gamma_2)t_2 \quad (\text{A.2.4b})$$

Imposing these restrictions on (A.2.3) yields the spline regression

$$y = \alpha_o + \beta_o t + \gamma_1 d_1(t_1 - t) + \gamma_2 d_2(t - t_2) + \varepsilon \quad (\text{A.2.5})$$